Observations showed that devil's shoe-string kills in a manner similar to that of derris. Its action is as quick or even more so, but it takes a somewhat longer time for the insects to die. It kills through paralysis and perhaps also through interference with respiration.

Field experiments on plant lice, *Aphis gossypii* and *Rhophalosiphon pseudobrassicae,* tent caterpillars, *Malacosoma americana,* yellow-necked caterpillars, *Datana ministra,* and Colorado potato beetle larvae, *Leptinotarsa decemlineata,* showed that the plant has considerable promise as a contact spray. But it possibly has greater promise for the control of various animal parasites. Almost perfect results were obtained on various species of fleas and lice; and encouraging results were obtained on cattle grubs, *Hypoderma lineatum.*

The supply at present is probably adequate for commercial purposes; but due to marked variations in the toxicity of the plant, it may not be possible to wholly utilize the available supply. Its commercial possibilities probably depend upon how cheaply it can be grown and harvested. A more detailed article will soon appear elsewhere.

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BIOCHEMISTRY IN RELATION TO INTELLIGENCE

MANY people seem willing to believe that the chemicals in one's body may affect one's mind; but, apparently, scientific literature has been extremely vague or altogether silent on the subject, except in the case of glandular secretions, certain drugs and the like.

In an attempt to determine whether there is a characteristic chemical difference between "intelligent" persons and idiots, blood tests were made on 12 normal or superior persons and 20 idiots. All the subjects were adults of approximately the same age and health, and in each group there was an equal number of males and females. Differences in diet were made note of, and the time of day at which blood was taken and the interval elapsing before the tests were kept fairly constant.

The Clark-Collip modification of the Kramer-Tisdall method was used for the determination of calcium, with the result that practically every case came within the normal range; all the idiots were normal in their calcium-content.

The Fiske-Subbarrow method was used for the determination of inorganic phosphate in blood plasma. The phosphate-content of the normal group was found to range between 3.25 and 8 mg per 100 cc of blood, but in only one case was it above 5.88 mg and in that case a retest one month later showed 3.01 instead of 8 mg, suggesting that the excess was temporary. Without a single exception, the idiots had a high phosphate content, ranging from 5.98 to 12.48 mg and averaging 8.95 mg per 100 cc of blood, as compared with an average of 4.36 mg for the normal group.

No characteristic sex differences appeared in calcium or phosphorus, and there was no reciprocal relation between the amount of calcium and that of phosphorus, especially in the case of the idiots.

Several other experiments on this general subject are in progress.

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THE LANGUAGE OF A CLERGYMAN

IT was gratifying to find that my modest paper on "The Language of Scientists," printed in SCIENCE for December 5, 1930, excited some interest. I had very appreciative and helpful letters from various parts of the country and from men engaged in many different scientific specialties, showing that the points treated of were considered important and timely.

And now I have the valuable criticisms of two correspondents in SCIENCE for January 16, 1931. I enjoyed reading these as much as I suppose the writers enjoyed making their very appropriate comments.

It was hardly fair, however, to visit the errors of this one poor sinner on the whole class of clergymen. To be sure I know many of them who say "dioseize" for "dioceses," who make three syllables of "Reredos" and who even will put the accent on the penult of "deficit," but as a class I am not aware that they are particularly weak on rhetoric, as I seem to be. At any rate this clergyman will try to be more careful in future and to get some keen-nosed rhetorician to revise anything he may prepare for publication.

There is only one word to which I take exception. Dr. Theodore W. Darnell, of New York (I do not know him, but I am sure he must be a Litt.D.), speaks of my "castigation" of my fellow members. Now this was just what I had no intention of administering. I wrote in a humble and sympathetic spirit and hoped that none would feel that I was being censorious in the ordinary meaning of the word. In fact one of my correspondents voluntarily congratulated me on my success in this particular. But the effect of the written word depends, not only on the disposition of the writer, but also on that of the reader. This latter it is impossible to guard against entirely. To point out errors is neither a pleasant task nor likely to excite gratitude in one who feels that he is himself perhaps guilty of some of them. I did not spare myself and told of my own mistakes and said that *we* were all *liable* to err instead of charging, "*You* are all *likely* to err."

And really I am a little disappointed in Dr. Darnell. After all my efforts to point out the undesirability of using mongrel words, he asks whether "supercritical" or "hypercritical" is correct, and seems to imply a preference for the Latin-Greek hybrid rather than for the nice, pure Greek compound.

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SCIENTIFIC BOOKS

The Stars of High Luminosity. Harvard Observatory Monograph No. 3. By CECILIA H. PAYNE. New York and London, McGraw-Hill Book Company, Inc., 1930, 8-vo. pp. ix, 320. Price $3.50.

IN 1925, Miss Payne published her first book on "Stellar Atmospheres" as No. 1 of the series of Harvard Monographs. The volume had a notable success. Not only astronomers, but also physicists and physical chemists found in it a much-needed summary of the maze of observational data which had accumulated since the discovery of the spectroscope. The theory of ionization was then less than five years old, and it was particularly appropriate to discuss the data from the point of view of the new theory. Since that time more than five years have passed. The theory has been greatly extended, the technique of measuring the intensities of spectral lines has been improved and adapted to the requirements of the theory, and a great amount of observational material has been accumulated. Since "Stellar Atmospheres" is now out of print and many parts of it out of date, Miss Payne has written an entirely new book which is to supersede and to complete her earlier volume.

The title of the new book is somewhat misleading. It covers a far wider ground than its narrow, perhaps even slightly artificial name, "The Stars of High Luminosity," might indicate. It is in fact a "physical study of stars by means of their spectra," as the first sentence of the book states, and it covers the subject of "Stellar Atmospheres" no less completely than did her first work.

The new book covers an epoch in observational astrophysics. It is one of those rare books that treat a whole field of knowledge from the purely scientific point of view and do not attempt the impossible in catering to the professional astronomer and to the layman at the same time. In a volume of 320 pages, neatly printed on excellent paper, Miss Payne has given a summary of her work and her ideas on the subject of the physical interpretation of stellar spectra. In a clear and vivid style she has given an account of the ionization theory and of various related subjects, primarily from the observational point of view. Being purely "scientific," a layman will get little out of it, but it will be highly appreciated by the scientific world. Astronomers, and perhaps even to a greater degree physicists and chemists, will find here a collection and a critical analysis of the many important facts that observations of stellar spectra have revealed.

The point of view which the author adopts in her new book is distinctly less objective than the one used in "Stellar Atmospheres." Apparently her intention has been more to give an account of her individual research rather than a balanced summary of all knowledge on the subject. As she states in the introduction: "It (the book) carries the work as far as I believe it can be carried with the kind of material available to me—spectra of comparatively short dispersion, either unstandardized or standardized by simple and unrefined methods."

The book falls naturally into four major parts. In the first the author discusses briefly the methods employed in modern spectro-photometric investigations, and the theoretical foundations of the work.

It has been known for some time that stellar absorption lines are not infinitely narrow, nor do they cut out all of the light from the continuous spectrum. Careful analysis has revealed that some lines are wide, while others are narrow; in some the amount of radiation that is cut out from the continuous spectrum is great, while in others it is small. The first task of the investigator is to measure the contours of the absorption lines and to attempt to obtain from these measurements information concerning the physical character of the outer atmospheres of the stars. Physical theory has been helpful in this respect. Through the work of Unsöld and of Stewart, to name only two of the whole succession of brilliant physicists who have worked on this problem, we have definite information as to the manner in which an atom absorbs when it is struck by a quantum of light: it appears that certain very definite laws concerning this absorption can be formulated, and from them important conclusions can be drawn with respect to what is called "the number of active atoms in the atmosphere of a star." In reality this number refers to all the atoms above a certain level in the atmosphere, and E. A. Milne has shown how this level can be determined. Miss Payne adopts the method of expressing her measurements in numbers of atoms, and all of the results contained in the book are more or less closely related to this procedure.

The second part of the book is entitled "The Material." This does not refer to the spectroscopic data